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09/848,834	05/04/2001	Stephen Grimes	1102865-0047	7489

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EXAMINER	
HUYNH, PHUONG N	
ART UNIT	PAPER NUMBER
1644	16

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/848,834	Applicant(s) GRIMES ET AL.	
	Examiner " Neon" Phuong Huynh	Art Unit 1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *Three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *7,13 and 14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-12,15 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7 & 9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-16 are pending.

2. Applicant's election with traverse of Group I, Claims 1-6, 8-12, and 15-16 drawn to a synthetic immunogen for inducing specific antibody against GnRH comprising a fusion peptide comprising a promiscuous helper T cell peptide epitope, immunomimic peptide, and a pharmaceutical injectable composition that read on synthetic peptide 3 (SEQ ID NO: 1), spacer peptide SEQ ID NO: 5 and T helper epitope from tetanus toxoid amino acid sequence 830-844, filed 8/1/02, is acknowledged. The traversal is on the grounds that (1) the restriction requirement as unduly restrictive in view of the design around peptide constructions or variations which may circumvent the patent scope of the claimed invention, especially the additional limitation as to species embodiment, (2) the prosecution of more than one application for the full patent protection would place undue hardship on the inventors. Upon reconsideration and in view of the elected species SEQ ID NO: 11 is free of art, the search has been extended to include SEQ ID NOS: 6-7, 9, 10, 12-20. Therefore, the requirement of Group I and Groups II-III is still deemed proper and is therefore made FINAL.

3. Claims 7, 13 and 14 are withdrawn from further consideration by the examiner, 37 C.F.R. 1.142(b) as being drawn to non-elected inventions.

4. Claims 1-6, 8-12, and 15-16, drawn to a synthetic immunogen for inducing specific antibody against GnRH comprising a fusion peptide comprising a promiscuous helper T cell peptide epitope and immunomimic peptide, and a pharmaceutical injectable composition, are being acted upon in this Office Action.

5. The drawings, filed 5/4/01, are not approved. Please see enclosed PTO 948, Notice of Draftsperson's Patent Drawing Review. Appropriate action is required.

6. Claim 3 is objected to because a word is missing between "the immunomimic peptide" and "by a spacer peptide".

7. Claim 8 is objected to because "aminoterminus" should have been "amino terminus".

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-6, 8-12 and 15-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling only for (1) a synthetic immunogen for inducing specific antibodies against GnRH comprising a fusion peptide wherein the fusion peptide consisting of a promiscuous T cell peptide epitope and immunogenic GnRH peptide wherein the synthetic immunogen is selected from the group consisting of SEQ ID NO: 9-20, (2) the synthetic immunogen mentioned above wherein the promiscuous T helper T lymphocyte epitope is fused to the amino-terminus and/or carboxy-terminus of the immunogenic GnRH peptide, (3) the synthetic immunogen mentioned above wherein the promiscuous T helper T-lymphocyte epitope is fused to the immunogenic GnRH peptide through a spacer peptide, (4) the synthetic immunogen mentioned above wherein the promiscuous helper T lymphocyte epitope consists of a universal T helper epitope selected from the group consisting of TT, DT, Malarial Protein CSP and MSP-F, (5) the synthetic immunogen mentioned above wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus of the GnRH peptide, (6) the synthetic immunogen mentioned above wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus and/or the carboxy-terminus of the GnRH peptide through a spacer peptide, (7) the synthetic immunogen mentioned above wherein the spacer peptide is selected from the group consisting of SEQ ID NO: 6-7, (8) the synthetic immunogen mentioned above wherein the fusion peptide is selected from the group consisting of one or more than one peptide defined by SEQ ID NO: 10 and 11, (9) a pharmaceutical injectable composition comprising the synthetic immunogen mentioned above and a pharmaceutically acceptable carrier for the production of high titers of anti-GnRH antibodies, **does not** reasonably provide enablement for (1) *any* synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or *any* analogue thereof", (2) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising a promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope" or *any* "analogue thereof" wherein the promiscuous helper T

lymphoctye epitope is fused to the amino terminus and/or carboxy terminus of *any* "immunomimic peptide epitope or any analogue thereof", (3) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or *any* analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to *any* immunomimic peptide by a spacer peptide, (4) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or any analogue thereof" wherein the promiscuous helper T lymphocyte epitope "comprises *any* nearly universal epitope sequence", (5) the said synthetic immunogen wherein the promiscuous helper T lymphocyte epitope "comprises *any* nearly universal epitope sequence" selected from the group consisting of any sequence of TT, DT, Malarial protein CSP, and MSP-F, (6) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or any analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus of any immunomimic peptide epitope or any analog thereof, (7) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide "comprising" a promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope" or *any* "analogue thereof" wherein the promiscuous helper T lymphoctye epitope is fused to the amino terminus and/or carboxy terminus of *any* "immunomimic peptide epitope or any analogue thereof" through a spacer peptide, (8) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide "comprising" a promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope" or *any* "analogue thereof" wherein the promiscuous helper T lymphoctye epitope is fused to the amino terminus and/or carboxy terminus of *any* "immunomimic peptide epitope or any analogue thereof" through a spacer peptide wherein the spacer peptide is selected from the group consisting of SEQ ID NO: 5-7, (9) *any* pharmaceutical injectable composition comprising *any* synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or *any* analogue thereof" for the production of high titers of anti-hormone antibodies. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in **scope** with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention. The specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without an undue amount of experimentation.

The specification discloses only twelve synthetic immunogens selected from the group consisting of SEQ ID NO: 9-20 for inducing specific antibodies against GnRH in animal wherein the synthetic immunogen comprises a fusion peptide consisting of a helper T peptide epitope from TT, DT, Malarial protein CSP, and MSP-F, fused to the amino terminus or the carboxy terminus of a GnRH peptide of SEQ ID NO: 1 through a spacer peptide selected from the group consisting of SEQ ID NO: 5-7. The specification discloses only one GnRH peptide of SEQ ID NO: 1.

The specification does not teach how to make and use *any* synthetic immunogen mentioned above for inducing antibodies against GnRH because the term "immunomimic peptide" without SEQ ID NO has no structure associated with function. Without the specific guidance as to the structure (amino acid sequence) of the "immunomimic peptide" and the "analog thereof", one of skill in the art cannot even make the immunomimic peptide, much less fused to any promiscuous helper T lymphocyte epitope, in turn, for inducing antibodies that would be specific for GnRH.

Kuby *et al* teach that antibody epitopes (B cell epitopes) are not linear and are comprised of complex three-dimensional array of scattered residues which will fold into specific conformation that contribute to binding (See Kuby 1994, page 94, in particular). Immunization with a peptide fragment derived from a full-length polypeptide may result in **antibody specificity** that differs from the antibody specificity directed against the native full-length polypeptide. Without the specific amino acid residues, it is unpredictable which undisclosed synthetic immunogen comprising the undisclosed immunomimic peptide and analog thereof fused to the T helper peptide epitope would generate antibody that have the same antibody specificity as an antibody generated from GnRH. Further, the term "comprising" or "comprises" is open-ended. It expands the fusion peptide to include additional amino acids at either or both ends in addition

to the undisclosed immunomimic peptide and analog thereof. There is no guidance in the specification as to what type and number of amino acids can be added and whether after addition of amino acids would retain the structure and function, much less generating antibody having the same specificity as the GnRH peptide, in turn, would be useful for any purpose. Further, there is insufficient in vivo working example demonstrating any synthetic immunogen comprising any immunomimic peptide, any analogue thereof fused to T helper epitope would induce GnRH specific antibodies, in turn, would be useful as a pharmaceutical composition for increasing the production of anti-GnRH antibodies.

Ngo *et al* teach that the amino acid positions within the polypeptide/protein that can tolerate change such as conservative substitution or no substitution, addition or deletion which are critical to maintain the protein's structure/function will require guidance (see Ngo et al., 1994, The Protein Folding Problem and Tertiary Structure Prediction, pp. 492-495).

Abaza *et al* teach that even a single amino acid substitution outside the antigenic site can exert drastic effects on the reactivity of a protein with monoclonal antibody against the site (See abstract, in particular). Given the indefinite number of undisclosed "immunomimic peptide" and "analogue thereof", it is unpredictable which undisclosed synthetic immunogen comprising a helper T epitope and the undisclosed "immunomimic peptide epitope or analog thereof" would induce GnRH specific antibodies. Since the "immunomimic peptide epitope or analog thereof" are not enabled, it follows that any synthetic immunogen comprising any promiscuous helper T lymphocyte epitope fused to the amino terminus and/or carboxy terminus of any undisclosed "immunomimic peptide epitope or analog thereof" by a spacer peptide or through a spacer peptide such as the ones in claim 10 is not enabled. It also follows that any pharmaceutical composition comprising any undisclosed synthetic immunogen mentioned above is not enabled.

With regard to "immunomimic peptide epitope comprises a partial sequence of GnRH (SEQ ID NO: 1) in claim 4, the term "comprises" is open-ended. It expands the partial sequence of GnRH to include additional amino acid at either or both ends. There is insufficient guidance as to additional amino acids to be added to the structure of the immunomimic peptide epitope. Further, the term "partial sequence" could be as little as one amino acid. It is known that GnRH is only ten amino acids in length and inherently not immunogenic. There is insufficient guidance and working example demonstrating a synthetic immunogen comprising a partial sequence of GnRH as little as one amino acid fused to a promiscuous T cell epitope from TT, DT, Malarial protein CSP, and MSP-F would induce GnRH specific antibody.

With regard to "promiscuous helper T lymphocyte epitope comprises a nearly universal epitope sequence" in claim 5, the specification does not define the term "**nearly** universal epitope sequence". Not only structure of the "nearly universal epitope sequence" is not disclosed, the term "comprising" is open-ended. It expands the indefinite number of undisclosed "nearly universal epitope sequence" to include additional amino acid at either or both ends. Given the indefinite number of undisclosed "nearly universal epitope sequence", it is unpredictable which undisclosed "promiscuous helper T lymphocyte epitope comprises a nearly universal epitope sequence" would be useful for enhancing the production of GnRH specific antibodies in synthetic immunogen.

For these reasons, it would require undue experimentation of one skilled in the art to practice the claimed invention. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

In re wands, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988), the decision of the court indicates that the more unpredictable the area is, the more specific enablement is necessary. In view of the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take an undue amount of experimentation for one skilled in the art to practice the claimed invention.

10. Claims 1-6, 8-12 and 15-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

The specification does not reasonably provide a **written description** of (1) *any* synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or *any* analogue thereof", (2) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising a promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope" or *any* "analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus and/or carboxy terminus of *any* "immunomimic peptide epitope or any analogue thereof", (3) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising

promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or *any* analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to *any* immunomimic peptide by a spacer peptide, (4) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or any analogue thereof" wherein the promiscuous helper T lymphocyte epitope "comprises *any* nearly universal epitope sequence", (5) the said synthetic immunogen wherein the promiscuous helper T lymphocyte epitope "comprises *any* nearly universal epitope sequence" selected from the group consisting of any sequence of TT, DT, Malarial protein CSP, and MSP-F, (6) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or any analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus of any immunomimic peptide epitope or any analog thereof, (7) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide "comprising" a promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope" or *any* "analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus and/or carboxy terminus of *any* "immunomimic peptide epitope or any analogue thereof" through a spacer peptide, (8) the synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide "comprising" a promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope" or *any* "analogue thereof" wherein the promiscuous helper T lymphocyte epitope is fused to the amino terminus and/or carboxy terminus of *any* "immunomimic peptide epitope or any analogue thereof" through a spacer peptide wherein the spacer peptide is selected from the group consisting of SEQ ID NO: 5-7, (9) *any* pharmaceutical injectable composition comprising *any* synthetic immunogen for inducing specific antibodies against GnRH comprising *any* fusion peptide comprising promiscuous helper T cell peptide epitope and *any* "immunomimic peptide epitope or *any* analogue thereof" for the production of high titers of anti-hormone antibodies.

The specification discloses only twelve synthetic immunogens selected from the group consisting of SEQ ID NO: 9-20 for inducing specific antibodies against GnRH in animal wherein the synthetic immunogen comprises a fusion peptide consisting of a helper T peptide epitope from TT, DT, Malarial protein CSP, and MSP-F, fused to the amino terminus or the carboxy terminus of a GnRH peptide of SEQ ID NO: 1 through a spacer peptide selected from the group

consisting of SEQ ID NO: 5-7. The specification discloses only one GnRH peptide that is SEQ ID NO: 1.

With the exception of the specific synthetic immunogen mentioned above for inducing GnRH specific antibodies, there is insufficient written description about the structure associated with function of *any* "immunomimic peptide or analogue thereof", *any* "partial sequence of GnRH", and *any* helper T lymphocyte epitope "comprises a nearly universal epitope sequence". Further, the specification discloses only one GnRH immunomimic peptide of SEQ ID NO: 1. Given the lack of an additional species of immunomimic peptide or analogue thereof, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus. Thus, Applicant was not in possession of the claimed genus. *See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.*

Applicant is directed to the Revised Interim Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

12. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of "a whole or partial sequence of GnRH of (SEQ ID NO: 1)" in claim 4 is ambiguous because it is not clear SEQ ID NO: 1 is referring to the whole sequence or the partial sequence as written. Further, SEQ ID NO: 1 is a partial sequence of the whole GnRH sequence.

The recitation of "nearly universal epitope sequence" in claim 5 is indefinite and ambiguous. One of ordinary skill in the art cannot appraise the metes and bounds of the claimed invention. Appropriate correction is required.

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-2, 8 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Ghosh *et al* (International Immunology 11(7): 1103-1110, 1999; PTO 1449).

Ghosh *et al* teach a synthetic immunogen for inducing specific antibodies against LHRH (also known as GnRH) comprising a fusion peptide comprising a promiscuous helper T peptide epitope such as Th1 epitope from tetanus toxin (T1) or various Th1 epitopes from E coli (T2 and T3) fused to the amino terminus (N terminus) of the immunomimic peptide LHRH such as immunogen 1 or fused to the Carboxy terminus of the LHRH peptide such as immunogen 2 (See Fig 1, Immunogens 1 & 2, Methods, page 1107, column 1, first paragraph, in particular). Ghosh *et al* further teach immunizing mice with the reference synthetic immunogen 1 produced high titers of anti-LHRH (antibody against GnRH) (See page 1107, column 1, first full paragraph, in particular). Thus, the reference teachings anticipate the claimed invention.

15. Claims 1-3, 5-6, 8-9 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 94/25060 (Nov 1994; PTO 1449).

The WO 94/25060 publication teaches a synthetic immunogen for inducing specific antibodies against LHRH (also known as GnRH) comprising a fusion peptide of about 30 to 90 amino acids which contains an immunostimulating invasin domain, a promiscuous helper T cell (Th) epitope such as diphtheria toxin (DT), tetanus toxoid (TT), plasmodium falciparum circumsporozoite (Malarial Protein CSP) and an immunomimic peptide such as LHRH (See page 6, last paragraph, page 24, lines 30-32 through page 26, in particular). The reference promiscuous Th epitope fused directly to the amino terminus of the reference immunomimic peptide such as LHRH (GnRH) or analog thereof (See page 21, line 30 bridging page 22, lines 1-8, reference SEQ NO: 11-17, in particular) or indirectly through a spacer peptide such as GG (See reference SEQ ID NO: 18-39, page 17, line 10-13, in particular). The reference immunomimic peptide epitope comprises a whole GnRH sequence (See abstract, in particular). The WO 94/25060 publication further teaches a vaccine composition comprising the reference synthetic immunogen and a pharmaceutically acceptable carrier (See page 29, lines 1-5, Abstract, in

particular). The reference promiscuous Th epitope provides the advantage of eliciting potent LHRH antibody responses in most members of genetically diverse population groups such as human (See page 16, line 22-25, in particular). The term "comprising" is open-ended. It expands the claimed synthetic immunogen to include additional amino acid at either or both ends to include the reference synthetic immunogen. Thus, the reference teachings anticipate the claimed invention.

16. Claims 1-3, 5, 8-9 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat NO 5,837,268 (Nov 1998; PTO 1449).

The '268 patent teaches a synthetic immunogen for inducing specific antibodies against GnRH comprising a fusion peptide such as a chimeric protein comprising a leukotoxin fused to an immunomimic peptide such as one or more multimers wherein each multimer is a whole GnRH polypeptide or analog thereof and at least one T cell epitope (See claims 1 and 4 of '268 patent, column 3, lines 30-54, column 6, lines 55-67, in particular). The reference helper epitope X is fused to the amino terminus and the carboxyl terminus of the reference GnRH (See formula GnRH-X-GnRH)n where n is greater than or equal to 1, claims 3 and 4 of '268 patent, in particular). The '268 patent further teach the reference synthetic immunogen wherein the GnRH is fused through an amino acid spacer group (See column 91, line 15, in particular). The reference leukotoxin is a T cell epitope having broad species reactivity (universal epitope) (See column 3, lines 10-14, in particular). The reference promiscuous helper T lymphocyte epitope is fused to the amino terminus of the reference GnRH (See column 3, lines 50-53, in particular). The '268 patent teaches a pharmaceutical composition comprising the reference synthetic immunogen and a pharmaceutically acceptable vehicle such as saline (See column 16, lines 46-66, in particular). The term "comprising" is open-ended. It expands the claimed synthetic immunogen to include additional amino acid at either or both ends to include the reference synthetic immunogen. Thus, the reference teachings anticipate the claimed invention.

17. Claims 4, 10-12 and 16 are free of prior art.

18. No claim is allowed.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to "Neon" Phuong Huynh whose telephone number is (703) 308-4844. The examiner can normally be reached Monday through Friday from 9:00 am to 6:00 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

20. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 305-7401.

Phuong N. Huynh, Ph.D.
Patent Examiner
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October 21, 2002

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